

THE RELATIONSHIPS AMONG TEACHER PERCEPTION,
STUDENT ACHIEVEMENT MOTIVATION, AND METROPOLITAN
READINESS TEST SCORES OF KINDERGARTEN BOYS

by

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The purpose of the study was to investigate the relationships among teacher perception, student achievement motivation, and student achievement. Data were gathered pertinent to the following questions:

1. Can student achievement be predicted from both teacher perception and student achievement motivation?
2. Can student achievement be predicted from both teacher perception and the factor scores associated with student achievement motivation?

The study involved 117 kindergarten boys and their 13 teachers. Each teacher completed the Adjective Description Form for each boy in her class. Students were assessed

using both the Metropolitan Readiness Test and Animal Crackers: A Test of Motivation to Achieve. Multiple regression procedures were used to ascertain the contributions of teacher perception and student achievement motivation as predictors of student achievement, i.e., the total score on the Metropolitan Readiness Test. The significance level was set at $\alpha = .05$

Teacher perception and student achievement motivation were found to be significant predictors of student achievement. In addition, the factor scores of achievement motivation were all found to be predictive of student achievement. The factor scores, Self-evaluation and Instrumental Activity, were the best predictors of student achievement. The high correlations among the achievement motivation factors reduced the predictive power of the other factors.

Implications for teacher education and parent education programs were discussed. Topics for future research were also discussed.

CHAPTER I INTRODUCTION

Teachers establish the learning environment in the classroom, provide materials, activities and expectations, and guide the interactions of the students (French, 1971).

However, Brophy and Good (1970) have suggested that (a) classroom life is an uneven affair because the teacher's attitude toward a student influences both the quality and the quantity of interactions with that student, and (b) teacher attitudes vary according to perceptions of student attitudes as manifested in students' behaviors. Brophy and Good also reported a need for more research on student attributes that influence the formation and change of teacher attitudes.

Student motivation is considered to be an important variable affecting classroom performance. Motivation will vary from student to student because motivation is a function of motive, expectancy, and incentive (Atkinson, 1966). The achievement motive is learned from a wide range of mastery experiences which have been positively reinforced. For the very young child, mastery emerges through the process of adaptation to the environment. McClelland, Atkinson, Clark, and Lowell (1953) viewed achievement motivation as developing in the child when he "begins to perceive performance in terms of standards of excellence" (p. 110). Although there has been some research on young children's achievement motivation,

the research has been limited because of the lack of non-verbal measures for the young child (Eklund, 1970).

Rist (1970) cited many studies which noted that teacher expectations of a pupil's performance may have a strong influence on the actual performance of that pupil. In his review of research on teacher expectations, Braun (1976) corroborated Rist's statement and stated that "there is a dearth of information to suggest whether or not the transmission of cues from the teacher effects different levels of expectations and subsequent performance of pupils" (p. 190).

Statement of Problem

This study will investigate the relationships among teacher perceptions, student achievement motivation, and student achievement. The results will provide information about teacher perception, will add to the present knowledge on achievement motivation of young children, and will reveal how they both relate to student achievement.

Need for the Study

In analyzing the process of education, Smith (1961) identified the following progression in the teaching-learning cycle which served as a model which demonstrated that pupil behaviors led to teacher perceptions and behaviors in a repetitive cycle.

P_t = teacher perception of pupil's behavior

D_t = teacher's diagnosis of the pupil's state of interest, readiness, knowledge, etc., made by inference from the behavior of the pupil

R_t = action taken by the teacher in light of his diagnosis

P_p = pupil's perception of teacher's behavior

D_p = pupil's diagnosis of teacher's state of interest, what he is saying, and so on, as inferred from the behavior of the teacher

R_p = reaction of the pupil to the actions of the teacher

Thus, $\parallel P_t \rightarrow D_t \rightarrow R_t \mid \rightarrow P_p \rightarrow D_p \rightarrow R_p \parallel \rightarrow P_t \rightarrow D_t \rightarrow R_t \mid \rightarrow P_p \rightarrow D_p \rightarrow R_p \parallel \rightarrow$
 . . . Achievement. In this teaching-learning cycle the P_t , D_t , R_t , was considered the act of teaching, while the P_p , D_p , R_p , was considered the act of taking instruction (pp. 92-97).

Garner and Bing (1973) developed a similar model of the teaching-learning cycle. They also stated that knowledge of teacher perceptions would both increase sensitivity of research design and would increase the capacity to influence teacher behavior. However, the realm of teacher expectancy research has been the subject of considerable controversy. Rosenthal and Jacobson (1968) introduced the concept of teacher expectancy effects. To explain how expectancies are transmitted in the classroom, Rosenthal stated that (a) the quality of interactions between a teacher and a highly regarded pupil differs from the quality of interactions that a less regarded pupil experiences, and (b) this difference is responsible, in part, for the transmission of differential expectations and the subsequent expectation effect.

Pupil characteristics have been suggested as possible sources of input in the formation of teachers' perceptions and subsequent interactions. Adams and Cohen (1974) reported the delineation of two categories of input cues that influence teacher expectancy (a) physical factors--age, race, sex, physical attributes--which are thought to have a primary effect on teacher expectancy during initial contacts with a child, and (b) interpersonal factors--academic ability, personality traits, social class, interpersonal skills and behaviors--which have more impact on teacher expectancy as a function of time.

The preceding delineation of categories which influence teacher expectancy points to student achievement motivation as a pertinent personality variable which has an impact on teacher expectancy. DeCharms (1968) points to the role of the early years in one's formation of achievement motivation tendency. DeCharms stated that personal causation is the initiation by an individual of behavior intended to produce a change in the environment. He further stated that early childhood experiences are important because of the principle of primacy which acknowledges that since childhood events occur first, they serve to shape, rather than be shaped by, other conceptions and subsequent experiences. The principle of primacy is important to the understanding of a student's motivation to learn.

The achievement motive is learned from a wide range of mastery experiences which have been positively reinforced.

For the very young child, mastery emerges through the process of adaptation to the environment. As the child explores the environment and is positively reinforced, further pursuit becomes intrinsically rewarding. This process--exploration, positive reinforcement, further pursuit--is fundamental to development of achievement goals essential to achievement motivation. Achievement related motivation refers to an individual's willingness to undertake a task with evaluative and competitive components for which the individual has attached a standard of excellence. Atkinson's (1966) theory of achievement motivation postulated that (a) one who has a high motive to succeed is interested in repeating tasks that are moderately difficult, and (b) one who has a negative motive to avoid failure will choose the very easy or very difficult task, neither of which challenges the child's abilities. Although early childhood experiences are important to the understanding of the child's motive to learn, research involving the achievement motivation of young children is limited.

This study then is designed to ascertain the relative influence of students' achievement motivation and teachers' perceptions of students as predictors of academic success. Dunham (1973) reported that previously used intellectual predictors such as GPA explain only 25% of the variance associated with prediction of student achievement. Dunham further reported that inclusions of non-intellectual factors, i.e., measures of achievement motivation, explained 45% of the

variance associated with prediction of student achievement. Since McClelland (1961) contended that achievement motivation can be taught, identification of such non-intellective factors which are predictive of academic success and which can be positively influenced by teachers is essential to the teaching-learning process. Attention to achievement motivation in the early years is especially needed when one considers Veroff's (1969) delineation of two types of achievement motivation--autonomous versus social comparison. Veroff contended that as the child enters and participates in the school environment, the child compares himself to others and begins to set expectations for performance accordingly.

The present study differs from previous studies in the following ways:

1. Identification of non-intellective factors which are predictive of achievement is focused in the first year of school because of the emergence of social comparison.
2. Subjects are kindergarten boys.
3. An instrument has been employed which can be easily administered to young children.
4. Use of factor scores of achievement motivation facilitates identification of areas to which the teacher can attend the promote growth.

Design of the Study

This study involved 117 kindergarten boys and their 13 teachers. Each teacher completed the Adjective Description Form (Willis, 1972, Appendix A) for each boy in her class.

Students were assessed using both the Metropolitan Readiness Test and Animal Crackers: A Test of Motivation to Achieve (Adkins & Ballif, 1975, Appendix B). Multiple regression procedures (Kerlinger & Pedhazur, 1973) were used to ascertain the contributions of teacher perceptions and student achievement motivation as predictors of student achievement, i.e., total scores on the Metropolitan Readiness Test.

Scope of the Study

Since the purpose of the study is to investigate the relationships among teacher perception, student achievement motivation, and student achievement, measures of teacher perception and student achievement motivation were obtained. While the teacher perception measure is a global rating of the student, the achievement motivation variable is based on five factor scores. Hence, the study investigated the following questions:

1. What are the contributions of both teacher perception and student achievement motivation in predicting student achievement?
2. What are the contributions of teacher perception and the factor scores associated with achievement motivation in predicting student achievement?

Definition of Terms

Teacher perception: teacher rating of student attributes on the Adjective Description Form.

Student achievement: student scores on the Metropolitan Readiness Test.

Student achievement motivation: student attitude which gives rise to achievement-oriented behavior as measured by the instrument, Animal Crackers: A Test of Motivation to Achieve (Adkins & Ballif, 1975). The factor scores are:

School enjoyment: student attitude related to the student's expectation of pleasurable experiences from achieving in school as measured by the instrument, Animal Crackers.

Self-confidence: student attitude related to one's perception of self as an achiever in school as measured by the instrument, Animal Crackers.

Purposiveness: student attitude related to one's ability to set goals to direct behavior as measured by the instrument, Animal Crackers.

Instrumental activity: student attitude related to one's ability to engage in appropriate behavior which will accomplish goals as measured by the instrument, Animal Crackers.

Self-evaluation: student attitude related to one's ability to assess one's performance in school as measured by the instrument, Animal Crackers.

Organization of the Study

Data were gathered on 117 kindergarten boys enrolled in four Title I elementary schools in Alachua County, Florida. Three of the schools were randomly selected from among the fourteen Title I schools in the Alachua County school system.

The teachers in the fourth school volunteered to participate in the study. To comply with the regulations of the Committee for Protection of Human Subjects, parental consent forms were obtained for those boys who participated in the study. Each of the thirteen teachers provided the teacher perception data. The 117 boys whose parents granted consent for the students' participation in the study were administered Animal Crackers: A Test of Motivation to Achieve. The data from these two sources were analyzed to determine the relative contributions of each in predicting student achievement as assessed by the Metropolitan Readiness Test and to test the following hypotheses.

Hypotheses

The study is designed to investigate the following hypotheses based on the regression model $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon_{ij}$ and the regression model $Y = \beta_0 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \epsilon_{ij}$:

- Hypothesis 1: The combined contributions of teacher perception and student achievement motivation are not predictive of student achievement.
- Hypothesis 2: Teacher perception is not predictive of student achievement.
- Hypothesis 3: Student achievement motivation is not predictive of student achievement.
- Hypothesis 4: The combined contributions of teacher perception and the factor scores of student achievement motivation, i.e., School Enjoyment, Instrumental Activity, Purposiveness, Self-evaluation, and Self-confidence, are not predictive of student achievement.

- Hypothesis 5: Teacher perception is not predictive of student achievement in combination with the factor scores of achievement motivation.
- Hypothesis 6: School Enjoyment is not predictive of student achievement.
- Hypothesis 7: Instrumental Activity is not predictive of student achievement.
- Hypothesis 8: Purposiveness is not predictive of student achievement.
- Hypothesis 9: Self-evaluation is not predictive of student achievement.
- Hypothesis 10: Self-confidence is not predictive of student achievement.

Limitations

Since the study was limited to males enrolled in Title I schools, the findings cannot be generalized to females or to non-Title I schools. Further research is needed to reveal the emergence of sex differences in achievement motivation tendencies.

A further limitation was that of measurement of achievement motivation. Although Animal Crackers has been validated, one can question whether another instrument would provide the same results.

Group administration of the instrument, Animal Crackers, was another limitation. Time restraints and sample size necessitated group administration of the instrument; however, the investigator was careful to provide an adult proctor for every five to seven subjects. No measure of IQ was obtained; therefore, the amount of variance in achievement due to differences in individual intelligence was not determined.

Also, the study was conducted in a university city. Findings should be interpreted with that fact in mind.

Due to the informed consent procedures, subjects in all schools volunteered to participate in the study. Even though three of the schools were randomly selected, the teachers within those schools and their respective students had to agree to participate in the study.

A final limitation was that interpretations of the results were made with caution due to the correlational nature of the data. Direction of causality could not be determined from the data.

CHAPTER II REVIEW OF LITERATURE

This study is designed to investigate the relationships among teacher perceptions, student achievement motivation, and student achievement to identify non-intellective factors which are predictive of student achievement. This review presents (a) research findings pertaining to teacher expectancy and teacher behavior, (b) student characteristics that influence teacher expectancy, (c) a discussion of the construct achievement motivation as a student personality variable and related research findings, and (d) relevant research identifying non-intellective predictors of achievement. This review is limited to studies relevant to the early childhood years, preschool through grade three.

Teacher Expectancy

The phenomenon of teacher expectancy, i.e., the self-fulfilling prophecy, was brought to the attention of educational researchers by Rosenthal and Jacobson (1968). In their landmark study, Rosenthal and Jacobson found that students who had been identified to their respective teachers as academic bloomers did indeed make significant gains in achievement. This finding precipitated further research on the expectancy effect.

In an attempt to replicate the study of Rosenthal and Jacobson, Mendels and Flanders (1973) conducted a study in first-grade classrooms in ten different schools in a large suburban school system. The 120 children were classified as educationally deprived and 108 of those children had some kindergarten or nursery school experience. One-half of the children were pretested using the Cognitive Abilities Test (CAT) and were then randomly assigned to experimental and control groups. Three weeks after the pretesting, the teachers were told that those students in the experimental group had hidden academic potential which might be manifested in a spurt of academic growth during the school year. Six months later, the children were retested on the CAT. Although the experimental group tended to make greater gain scores, the differences were not statistically significant. Thus, Mendels and Flanders reported that their findings did not support those of Rosenthal and Jacobson. However, they recommended further exploration of teacher expectancies including (a) the relationship of expectancies and the overt interactions of students and teachers, and (b) the investigation of teacher expectancies that result from more credible naturalistic inputs such as communications from other teachers, parents, school administrators, cumulative records, and pupil characteristics. This latter recommendation was also expressed by Sorotzin, Fleming, and Anttonen (1974). Jose and Cody (1971) also attempted to replicate Rosenthal

and Jacobson's findings. Their findings did not support those of Rosenthal and Jacobson, but the investigators suggested that their Interaction Analysis Scale might not have been sensitive enough to detect changes in teacher behavior as a function of teacher perceptions.

The above studies, while not supporting the findings of Rosenthal and Jacobson, pointed to the need for studies to investigate factors which influence and shape teacher perceptions.

Mason (1973) investigated the formulation of teachers' expectancies in a study involving teacher ratings of four kindergarten children (two boys and two girls) who had been videotaped while completing the Boehm Test of Basic Concepts. The 79 teachers who participated received one of five fictitious psychological reports which were developed for use in biasing the teachers toward the children in the videotapes; two of the reports were positive, two were negative, and one was neutral. As they watched the tape, the teachers marked "X" by each item in the test booklet which they thought the child had correctly answered. The nature of the bias was determined by a questionnaire. Analysis of variance procedures provided the following results:

1. Teachers were more influenced by negative information about students.
2. Teachers' expectations were influenced by biased materials differently than were their perceptions of actual behavior.

3. Teachers' observational ratings of student performance were more resistant to biasing influences than were their expectations for the student performance.

Mason recommended that the study be replicated in a classroom situation before concluding that psychological reports consistently bias teachers and that teachers' observations and expectations are truly different processes.

In a similar study to that cited above, Mason and Larimore (1974) found that information in the form of psychological reports influenced the teachers' descriptions of a child but did not influence their ratings of observed performance via videotape. There was no appreciable relationship between the observation ratings and expectation ratings. The authors suggested that teachers fragmented their conceptions of the child into what they thought they had seen him do and what they thought he was like, rather than developed an integrated concept of the child.

In probing into the dynamics of teacher perceptions, Jackson, Silberman, and Wolfson (1969) interviewed 32 third-grade teachers in five suburban Chicago communities. Each teacher was asked to describe two boys and two girls whom the teacher had recalled first and last when naming the class from memory. The content of the interviews was analyzed for signs of personal involvement. The analyses revealed that boys received more statements of personal involvement than girls; descriptions of boys contained more

negatively-toned statements; students who were named first (salient) received more statements of teacher involvement.

In another study of teacher attitudes toward young children, Willis and Brophy (1974) interviewed 28 first-grade teachers during the first two weeks of school, prior to readiness testing. The teachers were asked to assign students to each of four attitude groups--attachment, concern, indifference, and rejection. Results indicated that three major variables were involved in teacher attitude formation--the student's general level of school success, the degree to which students rewarded the teachers in their personal contacts with them, and the degree of the student's conformity to class rules. Of particular importance was the finding that the teachers' negative attitudes toward students assigned to the indifference and rejection groups led them to underestimate their ability and learning potential.

The studies cited indicated that teacher expectations are derived from various sources. Further studies investigated the transmittal of expectancies as manifested in differential teacher behaviors.

Teacher Behavior

To investigate the nature of expectancy effects, Brophy and Good (1970) applied a dyadic method of classroom interaction analysis to identify and document differential teacher behaviors which communicate different teacher expectations to individual children. Teachers in four first-grade classrooms were asked to rank their children according

to their perceptions of student achievement on a scale from high to low. Six "highs" (three boys and three girls) and six "lows" were chosen for the observational study. Observations were made on four separate days and continued for an entire morning or an entire afternoon. During the observations, only dyadic contacts between teacher and child were considered. The observer coded sequentially the initiator of the contact, teacher-afforded response opportunities, and other types of interactions initiated by the children, quality of the response, and type of feedback given by the teacher. In addition, hand-raising behavior was tallied. Through use of analysis of variance procedures, Brophy and Good concluded the following:

1. Children designated as high achievers raised their hands more frequently and initiated more procedural and more work-related interactions than did the "lows."
2. Teacher-afforded behavioral criticisms were directed more frequently to the "low" boys.
3. Teachers consistently favored the "highs" in demanding and reinforcing quality performance.
4. Boys tended to have more interactions of all kinds with the teacher.
5. Teachers were more evaluative in responding to boys and more objective in responding to girls.

Thus, Brophy and Good stated that their data confirmed the

existence of expectancy effects and indicated some of the intervening processes by which expectancies function as self-fulfilling prophecies.

In a study of the behavioral expression of teacher attitudes, Silberman (1969) utilized three categories of teacher behavior which were conceived as communicators of teacher attitudes--contact, positive and negative evaluation, and acquiescence. The study evolved through three phases: (a) the teachers were interviewed to ascertain their attitudes toward specific students in their classes, i.e., attachment, concern, indifference, and rejection, (b) the behaviors of those students were observed and recorded, and (c) the students were interviewed concerning their perceptions of the teacher's behavior. The major findings reported were that teachers' attitudes were translated into action in a variety of ways, and recipients of the differential behaviors were aware of the teachers' attitudes as were other children in the classroom.

Good and Brophy (1972) used Silberman's categorization of students by teachers--attachment, concern, indifference, and rejection--in their study to further investigate behavioral expression of teacher attitudes. However, the observation data were collected first to determine the quality and quantity of the teacher-child interactions for each child. The data were collected during sixteen $2\frac{1}{2}$ -hour observation periods for each of the nine first-grade classrooms included in the study. Following completion of the

observational data collection, the teacher attitude data were collected via questionnaire to determine the teachers' categorizations of students. Analysis of variance procedures supported Silberman's earlier findings.

To test the hypothesis of differential teacher behaviors, Good (1969) studied the classroom interaction in four first-grade classrooms in two predominantly white, working class neighborhoods. The teacher provided the observer with a seating chart and a listing of the pupils according to achievement rank and in class. From the listing, the investigator chose the four students at the top of the list, the four in the middle, and the four at the bottom for inclusion in the observational aspect of the study. The observer spent two complete days in each classroom for a total of ten hours of instructional time. During that time, tallies were entered for opportunity to respond which was divided into academic opportunities and reading opportunities, and positive or negative feedback from the teacher. Analysis of variance procedures supported the hypothesis that teachers do treat students differently as a function of expectancy. He found that the opportunity to respond was closely related to pupil achievement as rated by the teachers and that high achievers received a greater number of opportunities to respond than did the low achievers. Good stated, however, that to generalize beyond his sample of four classrooms would necessitate collection

and analysis of data from a variety of locations and conditions. In a further comment about the results of the study, he addressed the problem of observer effect on the teacher. The presence of an observer could have prompted the teacher to call on those students who would answer correctly so that the observer would be duly impressed. As a final comment, Good stressed that in studies of classroom interaction, the unit of analysis should be individual pupils or groups of pupils in their respective classrooms.

Building on previous research that supported the influence of teacher expectancy on both the academic performance of the child and the nature of classroom interaction, Firestone and Brody (1975) conducted a longitudinal study to investigate the hypothesis that the quality of interactions experienced by the children in the classroom influenced academic performance. The sample included 79 kindergarten children (44 females and 35 males), the majority of whom were black with a few Spanish-speaking children and 45 of the 79 children were from families eligible for welfare assistance. The six teachers were all white females with from one to ten years of experience. Observations were made in the respective classrooms approximately once every three weeks for a period of two hours. A modified Flanders system was used to record data. In April, 1972, the first-grade teachers administered the Lorge-Thorndike Form AIQ, the Primary Academic Sentiment Scale, and the Metropolitan Achievement Test. Using multiple regression techniques,

Firestone and Brody found that knowledge of teacher-student interactions significantly increased ability to predict academic performance, independent of IQ. Pertinent findings were the following:

1. Children who received the highest percentage of negative interactions with their kindergarten teachers were also the children who did more poorly on the MAT at the end of the first grade.

2. There was a significant positive relationship between subscores on word knowledge and total reading and the total number of times students were chosen to demonstrate something in class.

The investigators offered some alternative explanations for their findings related to inherent pupil characteristics which are independent of IQ but related to academic achievement. They stated that the child who entered into negative interactions with the teacher might have a different personality and temperament that interfere with his ability to learn material presented in class and which would, in turn, lead to poor performance, independent of the interactions experienced in school. Thus, Firestone and Brody called for the study of children prior to school entry to ascertain characteristics which might influence interactions with the teachers.

Differential teacher behavior across ability groups during reading instruction was the focus of two other studies. Davis and Slobodian (1967) analyzed student perceptions of

teacher behavior during reading instruction, observation data on teacher-student interactions during reading instruction, and sex differences in reading achievement and the relationship of these data to the interaction data. Ten female first-grade teachers and their students in a suburban Detroit public school system were included in the study. Analysis of the interaction data did not support the hypothesis that female first-grade teachers discriminate against boys and favor girls during reading instruction. The investigators called for more research focused on specific teacher-student interactions to provide information concerning the source of boys' lower reading achievement. Alpert (1974) examined teacher behavior during top and bottom reading group sessions in fifteen second-grade classrooms in eleven Catholic schools in New York City. After analysis of 90 group sessions, the investigator reported that the teachers generally treated the reading groups the same with respect to the amount and quality of reading group time, the number of reading group materials used, and the number of "good" verbal behaviors. However, teachers placed significantly fewer children in the bottom reading group. A possible explanation of the above findings might be that reading is of high priority and is too specific an area in which to observe differential teacher behaviors.

Research has documented that different students regularly receive differential treatment from their teachers. Good and Brophy (1974) expressed concern that little research

had been conducted to identify feedback procedures which would assist teachers in changing their behavior toward selected students and to ascertain the effects of such changes on both target and non-target students. Hence, they conducted a study involving first-grade teachers as research partners. They found that simple consultation in which teachers were presented with feedback about their behavior was effective in changing both the quantity and quality of teacher behavior toward target students. In addition, student behavior was influenced by the change in teacher behavior. Of particular interest was the finding that specified changes in teacher behavior toward target children were likely to be accompanied by additional changes in teacher behavior toward target and non-target children.

In addition to teachers becoming cognizant of the effects of changes in their behaviors as cited in Good and Brophy's study, Goldberg and Mayerberg (1973) found that different students' reactions to teacher nonverbal behavior must be considered when making decisions about effecting changes. In examining the differential emotional reactions across age and race, Goldberg and Mayerberg randomly selected 120 students in urban Philadelphia and assigned them to experimental conditions. The students viewed three videotapes of the same white female teacher delivering a lecture on the principles of drawing and directions for the performance of drawing tasks. On each of the three videotapes, the teacher's verbal behavior was held constant; however,

the nonverbal behavior was different on each tape, i.e., positive, negative, or neutral. The emotional reactions of the students were measured on a semantic differential scale. Analysis of variance and Tukey's tests of significant differences revealed that black second graders evaluated the neutral teacher most positively, while the white second graders evaluated the positive teacher most favorably. The authors suggested that black second graders associated teacher neutrality with more student freedom in that they were free from the demand for compliance which positive and negative affect transmit. Of note, too, was the authors' suggestions that more research into race and age differences be undertaken. Videotapes of teachers of different race, age, and sex would provide more information about the emotional reactions of students to nonverbal behavior.

Soar and Soar (1973) conducted a study which focused on control exercised by teachers in three areas: behavior of pupils, choice of subject matter, and thinking processes used by students. The first-grade sample included 23 classrooms in a university city. The students were pretested in the fall of 1970 and observations were made during the school year with posttesting in the early spring and the following fall (1971). They reported that "disadvantaged students were more sensitive to the effects of both positive and negative affect and that their growth was greater under

larger amounts of gentle control than was true for advantaged pupils" (p. 149). They further reported that intermediate levels of structure were associated with the most gain and that teacher criticism was negatively related to pupil growth.

The manifestation of differential teacher perceptions in differential teacher behavior is documented in the above research. Researchers must now turn their attention to the inclusion of teachers as research partners so that teachers can modify their behaviors and, in turn, maximize learning opportunities for their students. First, however, teachers must become cognizant of not only their perceptions of the school situation but also their students' perceptions of the school environment.

Student Characteristics that Influence

Teacher Expectancy

The previous studies documented that teacher behaviors have an influence on students. Some suggested that pupil characteristics might be a source of input in the formation of teachers' expectancies and subsequent interactions, Adams and Cohen (1974) reported the delineation of two categories of input cues that influence teacher expectancy (a) physical factors--age, race, sex, physical attributes--which are thought to have an effect on teacher expectancy during initial contacts with a child, and (b) interpersonal factors--academic ability, personality traits, social

class, interpersonal skills and behavior--which have more impact on teacher expectancy as a function of time.

To investigate the nature of the input cues, Adams and Cohen tested the following hypotheses:

1. Physical characteristics have a greater influence on teacher-student interaction than interpersonal characteristics during the first few days of school.

2. Age of the child has a differential effect on teacher-student interactions.

The three female teachers who participated in the study were evaluated by four judges as being moderately attentive, moderately flexible, highly affectionate, and as preferring structured teaching styles. The student sample consisted of 17 kindergarteners, 14 fourth-graders, and 18 seventh-graders, all males, in an open concept, private school in the Midwest. Two 30-minute observations in which the verbatim content of each teacher-student interaction was recorded were conducted on the third and fourth days of a new school year. The observation data classified verbal support statements, control statements, and neutral statements. At the conclusions of the observation sessions, teachers rated students on four measures of physical or interpersonal behavior (a) facial attractiveness, (b) physical appearance, (c) disruptiveness in the classroom, and (d) verbal fluency. The investigators reported that facial attractiveness had some effect on the frequency of teacher-student interactions and that teachers were more influenced

by the attractiveness of the child at the fourth and seventh-grade levels than at the kindergarten level. The classification of teacher-student control interactions revealed a trend for increased frequency with the age of the child which the authors found disturbing. They interpreted this finding as indicative of increased authoritarianism as the child progressed through the school.

To delineate student personality characteristics preferred by student teachers, Feshback (1969) presented 240 student teachers (white middle class) with 16 story situations which depicted boys and girls manifesting four different personality clusters: (a) flexible, non-conforming, untidy as opposed to rigid, conforming, orderly, and (b) active, independent, assertive as opposed to passive, dependent, acquiescent. For each situation, the student teacher had to rate the child in the story on intelligence, grades usually received, generosity, popularity, and inclusion in the class of the rater. The hypothesis that student teachers placed a higher value upon children whose behaviors reflected caution and conformity was supported. The student teachers rated the clusters in the following order of preference: (a) rigid, conforming, orderly girls, (b) rigid, conforming, orderly boys, (c) dependent, passive, acquiescent girls, (d) dependent, passive, acquiescent boys, (e) flexible, non-conforming, untidy boys, (f) flexible, non-conforming, untidy girls, (g) independent, active,

assertive boys, and (h) independent, active, assertive girls. The expectation that sex-typed behaviors were more acceptable when displayed by the appropriate sex was supported by the ranking of the last two personality clusters.

Goebes and Shore (1975) conducted a similar study to ascertain teacher preferences and further analyzed their data according to the sex of the teacher. Seventy-two teachers (24 males and 48 females) were administered a semantic differential scale consisting of 12 bipolar adjectives. Ratings were made on a six-point scale on the following topic words: The Typical Boy, The Typical Girl, The Ideal Student, The Typical Mother, The Typical Father, The Ideal Parent, The Typical Teacher, The Ideal Teacher. The last five topic words were used to disguise the purpose of the study. The ratings of the Typical Boy and the Typical Girl were compared with the ratings of the Ideal Student to ascertain the teachers' judgements of the behavior of boys and girls in relation to the behavior of the ideal. The findings confirmed that the typical behavior of girls was perceived as significantly closer to the Ideal Student than was that of boys. However, when the findings were analyzed according to the sex of the teacher, major differences were found in that female teachers viewed the behavior of girls as significantly closer to the ideal than did male teachers. Hence, Goebes and Shore suggested that research in classroom interaction investigate variables within the

teacher and their interaction with the characteristics of the students, rather than investigate only the factors within the students themselves.

Building on the research cited above, Helton and Oakland (1977) conducted a study to investigate teachers' attitudinal responses of attachment, rejection, concern, and indifference introduced by Silberman (1969) when given 16 descriptions of students differing in four personality characteristics introduced by Feshback (1969), two levels of academic ability, and sex. Subjects were 53 third and fourth-grade elementary teachers from ten elementary schools. The teachers were presented with 16 stories reflecting personality, achievement, and sex. After reading the situation, the teacher indicated the degree of attachment, concern, rejection, or indifference on a six-point Likert-type scale ranging from very unlikely to very likely. The order of descriptions and questions following the descriptions was randomized for each teacher. Helton and Oakland reported the following results:

1. Teachers were most attached to and concerned about the passive, dependent, acquiescent child and the rigid, conforming, orderly child.

2. Less attachment and concern were expressed for the active, independent, assertive child and the flexible, non-conforming, untidy child.

3. The level of the child's ability was most highly related to teacher concern. Less concern was expressed for students of high ability.

4. Teachers expressed more concern about academic difficulties of girls. More concern was expressed for the personal-social problems of boys.

5. Teachers reported a high concern for and willingness to offer remedial help to some groups of students about whom they were unenthusiastic (below-average, flexible, non-conforming, untidy) but not for other groups.

The authors concluded that personality characteristics heavily influenced attitudes of attachment and rejection and modestly influenced attitudes of concern and indifference. While personality and ability factors were seen as influencing attachment, only personality factors were seen as influencing rejection.

In a study to ascertain student attributes which teachers attend to and use in forming expectations for students' achievement potential, Willis (1972) found that 28 first-grade teachers were generally accurate in assessing student learning potential. The data analysis indicated that student attention to the teacher, student self-confidence, maturity as judged by the teacher, and student ability to work without constant supervision were the most important correlates of teacher judgement of student ability.

The preceding research studies have revealed some of the possible student characteristics which lead to formation of teacher perceptions. Individual student achievement orientations as manifested in levels of student ability have been conceived as having an influence on the formation of teacher perceptions.

Achievement Motivation in

Early Childhood Education

Achievement motivation has been conceived as a personality factor which provides input into others' perceptions of one's ability. This section presents the theoretical background of achievement motivation and research relevant to the early childhood years.

Theoretical Background

In the 1920's the construct of drive was predominant in achievement motivation theory. Drive was linked with need. Hull considered drive to be the psychological manifestation of a need state (Weiner, 1972). A few basic, inborn biological drives, i.e., hunger and sex, were considered the motivating forces of human behavior.

By the late 1930's Henry Murray emerged as the primary influence in achievement motivation research and in the development of achievement theory. Murray believed an individual is active and growing, rather than passive, and that both environmental and personal characteristics affect

an individual's behavior. Murray (1938) described need for achievement as follows:

The desire or tendency to do things as rapidly and/or as well as possible. It also includes the desire to accomplish something difficult. To master, manipulate and organize physical objects, human beings, or ideas. To do this as rapidly, and as independently, as possible. To overcome obstacles and attain a high standard. To excel one's self. To rival and surpass others. To increase self-regard by the successful exercise of talent. (p. 164)

Murray was the originator of the Thematic Apperception Test which has been widely used in research in achievement motivation (Knowles, 1969).

McClelland's Theory of Motivation

Motivation theory evolved further as a result of McClelland's work which was influenced by that of Murray. This influence is evidenced in McClelland's emphasis on a molar approach to personality, on a multi-dimensional approach to understanding human behavior, and on an individual's need system and the measurement of individual needs. In his early work, McClelland identified the roles of motives, traits, and schema in understanding human behavior and personality differences. He considered motives to be the genotypes of behavior, i.e., they determine why people behave the way they do. Traits were identified as an individual's predominant mode of behaving in a particular situation, i.e., they are the how of behavior. Schema were considered by McClelland to be an individual's cognitions about the self and others (Weiner, 1972).

Motives are the core constructs in McClelland's analysis of behavior. McClelland purported that affective states are associated with stimuli such as achievement tasks. These affective states, when aroused, elicit approach or avoidance behavior. The affective inclination serves to direct behavior and is the basis for motives. McClelland further stated that motives are aroused when an individual perceives a discrepancy in present and future affective states; this discrepancy leads to the approach or avoidance behavior. Hence, McClelland designated his conception of motivation as an affective arousal model (Weiner, 1972).

McClelland, Atkinson, Clark, and Lowell (1953) investigated the achievement motive, or need for achievement. Need for achievement was conceived as the arousal of positive or negative affect as a result of the undertaking of performance tasks to which a standard of excellence had been attached. McClelland et al. utilized a modified Thematic Apperception Test to establish the construct validity of the need for achievement.

Atkinson's Theory of Achievement Motivation

Atkinson's theory of achievement motivation evolved from his work with McClelland. Atkinson placed an emphasis on differences in personality structure, i.e., in motives, expectancy, and incentive, as behavioral determinants of achievement motivation. In Atkinson's model, motivation is a function of an individual's motive, expectancy, and

incentive values in a given achievement situation--Motivation = $f(\text{Motive} \times \text{Expectancy} \times \text{Incentive})$ (Atkinson, 1966).

Based on this model, Atkinson postulated that (a) one who has a high positive motive to succeed is interested in repeating tasks that are moderately difficult, and (b) one who has a negative motive to avoid failure will choose the very easy or very difficult task, neither of which challenges one's abilities. Thus, the relative strengths of the hope of success/fear of failure affective orientations determine whether one approaches or avoids achievement tasks.

Research studies undertaken to validate Atkinson's model yielded inconsistent results and revealed a weakness in the model. More specifically, the research indicated that (a) failure enhanced motivation of individuals assessed as high in resultant achievement motivation, (b) failure inhibited motivation of individuals assessed as low in achievement motivation, (c) success experiences decreased the motivation of individuals high in resultant achievement motivation, and (d) success experiences enhanced the motivation of individuals assessed as low in resultant achievement motivation (Weiner, 1972, pp. 229-230). Atkinson and his colleagues modified the model to accommodate the assumption that an unsatisfied tendency to attain a goal persists. Hence, hope-of-success motivation was conceived as a function of the motive to succeed, the probability of success, and the incentive to succeed plus an "inertial tendency." The

inertial tendency represented an individual's persistent tendency to undertake activities expected to lead to success. Thus, the inertial tendency was conceived as applying to positive motivational tendencies, or persistence of those tendencies (Weiner, 1972).

Weiner (1965, 1970) suggested that the inertial tendency concept be broadened to include the persistent fear tendency, threat of failure, in achievement situations. Weiner purported that both approach and avoidance tendencies persist following failure. This further modification of the Atkinson model explained the interaction between the motivational effects of failure and individual differences in achievement-related needs. This modification has received empirical support (Butterfield & Zigler, 1965; Lucas, 1952; Lazarus & Eriksen, 1952; Mandler & Sarason, 1952; Weiner, 1966; Weiner & Schneider, 1971; Child & Whiting, 1950).

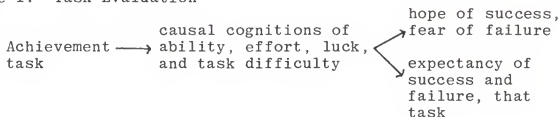
Achievement Motivation and Attribution Theory

Atkinson's theory of motivation has also been interpreted in light of research in the realm of attribution theory. Attribution theory is a cognitive approach to the understanding of behavior and deals with how people perceive motivation. Heider has been acknowledged as the founder of attribution theory. Heider stated that an action outcome is the function of effective personal forces (internal) and effective environmental forces (external) (Heider, 1958). This can be related to Atkinson's model of achievement

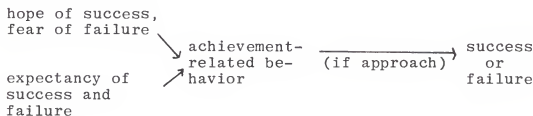
motivation in that resultant achievement motivation tendency, a personal factor, affects one's task preference, an environmental factor. However, Heider was concerned with the consequences of differential ascriptions to internal/external factors. The differential ascriptions were conceived as resulting in different affective experiences, future expectations, and behaviors. Heider identified the following four perceived causes of success and failure at achievement tasks which he postulated could be generalized to all achievement tasks: ability (power), effort, task difficulty, and luck. This contention has received empirical support (Weiner, Frieze, Kukla, Reed, Rist & Rosenbaum, 1971) (Weiner, 1972, p. 355).

Weiner (1972) presented the following attributional model of achievement behavior based on Heider's attribution theory:

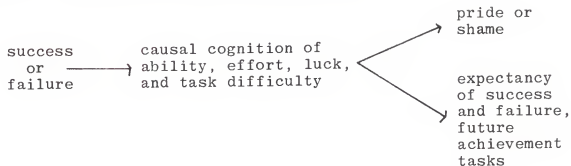
Stage 1. Task Evaluation



Stage 2. Goal-Directed Behavior



Stage 3. Task and Ascription Reevaluation



In Stage 1, the individual perceives an achievement-related task which evokes causal attributions of success and failure. The causal attribution, in turn, leads both to one's future expectancy of success or failure and to affective anticipations--hope of success/fear of failure. In Stage 2, the affective anticipations and goal expectancies lead to approach or avoidance behaviors, and subsequent success or failure. Lastly, in Stage 3, the individual uses the achievement outcome information to reevaluate the initial causal attributions. This reevaluation determines, to some extent, achievement-related affect, i.e., pride or shame and future expectancy of success at this and similar tasks.

In a further discussion of causal attributions (ability, effort, task difficulty, and luck), Weiner (1972) delineated the following dimensions: locus of control (internal, external) and stability (fixed, variable). These dimensions are integral in understanding affect and expectancy as determinants of behavior. The following table illustrates the delineation:

Stability	Locus of Control	
	Internal	External
Stable	Ability	Task Difficulty
Unstable	Effort	Luck

(p. 356)

Hence, task difficulty and ability are conceived as becoming stable over time as one encounters achievement-related tasks and perceives the outcomes of those encounters. Effort and luck, however, are considered to be variable from one task to another.

Causal attributions are inferred from a variety of cues. For example, the cues from past performance and social consensus are deemed important factors in one's internal or external causal attributions of success and failure. Weiner (1972) summarized the cues as follows:

Causal Elements	Cues
Ability	Number of successes, percentage of successes, pattern of success, maximal performance, task difficulty.
Task difficulty	Objective task characteristics, social norms.
Luck	Objective task characteristics, independence of outcomes, randomness of outcomes (pattern of performance), uniqueness of event.

Causal Elements

Cues

Effort

Outcome, pattern of performance,
perceived muscular tension,
sweating, persistence at the
task, covariation of performance
with incentive value of the goal,
task difficulty.

(p. 364)

In addition, the cues are postulated to generalize across achievement tasks.

To summarize, a theory of achievement motivation has evolved from the earlier works of Murray, McClelland, and Atkinson. Atkinson's theory has been generally supported by empirical data. However, some weaknesses appeared and the theory was modified in light of the research findings indicating that there is an interaction effect of the motivational tendencies of both success and failure and individual differences in motive, expectancy, and incentive. Atkinson's theory was further enhanced by Heider's attribution theory in which he identified factors which contribute to perceived causation: ability, effort, luck, and task difficulty. These factors are integral in determining one's achievement-related affect and future expectancy in achievement-related tasks. Hence, the achievement motive is conceived as a cognitive disposition. Individual differences in achievement motivation influence causal judgements which, in turn, influence the direction, magnitude, and persistence of behavior.

Achievement Motivation Research in Early Childhood Education

Although early childhood experiences are important to the understanding of the child's motive to learn, research involving the achievement motivation of young children is limited. Crandall, Katkovsky, and Preston (1960) corroborated this statement and cited the following researchers as having completed research in the area: Rosen, 1958; Kagan, 1958; Winterbottom, 1958; and Strodbeck, 1958. There has been a paucity of classroom-related research to date.

Crandall et al. observed young children engaged in free play activities and found that discrete achievement behaviors, such as achievement choices and task preference, could be identified. Individual differences in these behaviors as were manifested in the frequency of children's participations in achievement activities and the consistent choice between the types of achievement activities (physical skills versus intellectual activities) were observed.

Further research conducted by Crandall, Preston, and Rabson (1960) was based on the concepts of attainment value, achievement standards, and achievement expectancies as defined by Crandall, Katkovsky, and Preston (1960).

Attainment value is the importance that an individual attaches to the attainment of approval and the avoidance of disapproval regarding the competence of his performance in a given achievement area (p. 791).

Achievement standards are a scale of excellence against which the competence of an individual's achievement efforts may be evaluated (p. 792).

Achievement expectancy is the probability held by the individual that his achievement efforts will lead to goal attainment (p. 795).

Crandall, Preston, and Rabson investigated the following areas: (a) the relationship between children's independence and achievement behaviors, (b) generality of achievement behaviors from the home to the nursery school setting, and (c) observed maternal reactions to achievement behaviors as potential determinants of children's achievement development. The study involved 30 three-, four-, and five-year old children and their mothers; there were 19 boys and 11 girls. All subjects were from the middle-class and were better educated and tested higher on I.Q. tests than the national norms. The children were rated on the following aspects of achievement behavior: (a) the amount of achievement efforts exhibited during free-play activities, (b) the amount of help-seeking from adults, (c) the amount of emotional support-seeking from adults, and (d) the amount of approval-seeking from adults. In the home setting, the children's behaviors with their mothers and the accompanying mothers' reactions were rated. These ratings were compared to the ratings in the nursery school setting. The following results were reported:

1. No significant sex differences were found in free-play achievement behaviors or in help-seeking, support-seeking, or approval seeking.

2. The three dependent behaviors were positively related to each other and negatively related to achievement efforts. High achieving children were less dependent on adults than were children who displayed fewer achievement efforts. Independence from adults and amount of achievement striving were positively correlated in the children's nursery school free play.

3. By nursery school age, moderate consistencies in children's behavior from home to school environment were found.

4. Independence training and rewarding of achievement were positively related.

5. Mothers who rewarded achievement efforts were less nurturing but not less affectionate than mothers who were less prone to reward achievement efforts.

In a study to further investigate motivational determinants of young children's intellectual achievement behaviors, Crandall, Katkovsky, and Preston (1962) evaluated the relationship between the achievement motivations and attitudes of 40 first, second, and third-grade children and their performance in several diverse intellectual achievement activities. The investigators assessed the following dependent variables: amount of time spent on intellectual activities in free play, intensity of achievement striving in intellectual free-play activities, intelligence test performance, and performance on the reading and math subtests of a standardized achievement

test. The predictor variables used were the following:

- (a) need for achievement as reflected in TAT stories,
- (b) general manifest anxiety as assessed with the short form of the Children's Manifest Anxiety Scale, (c) intellectual attainment value, (d) expectations of success in intellectual achievement situations, (e) minimal intellectual achievement standards, and (f) assignment of responsibility to self versus others for every day reinforcements resulting from intellectual achievement efforts. Crandall et al. reported few significant sex differences on either the predictor or dependent variables. The authors noted that need for achievement and manifest anxiety (used in most research) did not predict children's achievement performance in any of the four achievement situations. The following results were reported: (a) intellectual attainment value was predictive for girls' intellectual achievement free-play behaviors, but not for that of boys, (b) girls who valued intellectual competence spent more time in intellectual pursuits in free-play and evidenced more intense striving than did girls who expressed less concern with intellectual competence, (c) boys' stated expectations of intellectual success were positively associated with their intellectual achievement efforts; expectations of girls were either negatively or non-significantly related to intellectual behavior, and (d) the variables of minimal achievement standards and assignment of self-responsibility

for achievement events were frequently predictive of boys' achievement behavior but were essentially unrelated to those of girls.

Schell, Veroff, and Schell (1967) conducted a study which investigated the relationship of achievement motivation and performance of second-grade boys and girls when engaged in tasks relevant to regular school work, the influence of two types of achievement motivation on the performance of children, and sex differences in achievement motivation. Subjects were 65 girls and 63 boys from five second-grade classrooms at Erickson Elementary School, Ypsilanti, Michigan. Subjects' ages ranged from seven years, three months to nine years, zero months. All socio-economic classes were represented as ascertained by parental occupation and education data. Subjects were classified according to reading group--very high, high, middle, low, very low--depending on the level of the book used in the respective reading groups (3¹ to 1¹ or preprimer levels). Subjects were presented with the following tasks:

External Task--The subject was presented with five white cardboard boxes and was told how other children his age had performed on the task. Each box contained three sentences from a reader at a particular level. The child chose the box from which to read a sentence.

Internal Task--Each subject was presented with ten boxes. Boxes 1-8 contained sentences from preprimer through grade 32. Boxes 9 and 10 contained sentences from literature books and advanced physiology and psychology books which were conceived as impossible for the children to read. The subject designated his level of aspiration after his immediate performance had been called to his attention.

Tasks were presented on a random basis to control for possible bias based on order of presentation. On the Internal Task the subject began with the first box and read one sentence from each box until an error was made on two consecutive sentences. The experimenter then presented the subject with four boxes: the last two successes and the two failures. The child chose the task he wanted to repeat, thus, designating his level of aspiration. On the External Task, the subject's attention was directed to Boxes 2, 3, and 4. The subject was told that Box 2 contained sentences most children his age could read, that Box 3 contained sentences that some children his age could do, and that Box 4 contained sentences most children his age could not read. The child's choice among the three boxes was used as a designation of level of aspiration. Optimal level of performance was determined by having the subject read sentences from Boxes 1 to 5. The investigators reported that there was a significant low positive relationship between achievement motivation and performance on the Internal Task for both sexes. The subjects in the Very High and High groups did not appear as high achievers on the External Task. The authors suggested that the External Task might not have been adequate in eliciting achievement motivation. There was a low positive significant association between the two achievement measures for boys and a low positive non-significant association for girls. The authors

suggested that the two types of achievement motivation are distinct, although more so for boys; however, this finding could have been affected by the possible inadequacy of the External Task. There was no significant difference between boys and girls on the achievement motivation or performance measures of either task. The correlation between I.Q. score on the Lorge-Thorndike Intelligence Test and achievement motivation on both tasks was not significant, a finding supporting the contention that achievement motivation and intelligence are relatively independent. Lastly, there was a significant association between reading group placement and achievement motivation on the Internal Task.

Veroff (1969) developed an instrument based on Atkinson's theory which he successfully used with nursery school children. His measure of autonomous achievement motivation consisted of the following four types of scaled tasks, each of which required different skills encompassing motor coordination, visual memory, memory span, and copying ability:

1. reproduction of different strings of snap-it beads.
2. a ball-throwing task involving distance and accuracy.
3. an object memory task involving recall of objects pictured on sheets of paper.
4. a drawing task involving replication of designs of increasing complexity.

Veroff postulated that there are two types of achievement motivation, autonomous achievement motivation and social achievement motivation. Autonomous achievement motivation was seen as developing first; social comparison emerged after a child entered school. Veroff's research findings supported the delineation of types of achievement motivation. Preschool subjects evidenced autonomous achievement motivation. Social comparison motivation gradually became more evident in the older subjects and reached its peak among seven to nine-year-olds.

Building on the preceding studies and using the Measure of Autonomous Achievement Motivation developed by Veroff (1969) for use with nursery school children, Callard (1968) investigated the relationship between achievement motivation and maternal expectancies regarding achievement. Subjects were 80 four-year-olds and their mothers who resided in a large urban area in southeastern Michigan. Each mother was the primary caretaker and each child was enrolled in a nursery school at the time of the study. There were 20 upper-class boys, 20 upper-class girls, 20 lower-class boys, and 20 lower-class girls. Ages ranged from 48 to 60 months. Achievement motivation was measured using Veroff's Measure of Autonomous Motivation which consisted of four tasks: bead design, picture memory, basket throw, and drawing forms. The instrument was administered to children individually during regular

morning sessions at nursery school. To measure parental expectancy, the mothers completed a 36-item questionnaire, The Parental Developmental Timetable. The questionnaire consisted of two subscales: achievement inducing and independence granting. The questionnaire was conceived as a projective instrument; therefore, parents were instructed to respond to children in general. Three scores were derived from the instrument: Achievement Inducing Score, Independence Granting Score, and Controlling Score, a ratio of the mean age of Achievement Inducing Items. Callard reported that a high achievement motive was found only in lower-class children whose mothers chose medium rather than extreme ages for inducing achievement. A sex difference emerged in the upper-class sample. Early pushing for achievement of girls was associated with the mother's high achievement motive score. Early pushing for achievement of boys was related to the mother's low achievement motive score. Mothers of lower-class girls suggested significantly later ages for granting independence than the mothers in any of the other subsamples. High achievement motive tended to be associated with the controlling attitude of the mother. This was most prevalent with girls and was most apparent in the upper-class sample. Two findings differentiated boys from girls: (a) there were fewer and weaker associations between mothers' expectancy scores and the boys' achievement motives, and (b) upper-class boys

demonstrated a positive relationship between age of achievement inducing and level of achievement motive, i.e., mothers with early expectancy had sons with low motivation. These results indicated that measurable differences in achievement motive can be found in young children.

To investigate the emergence of social comparison and students' receptiveness to social approval as determined by task difficulty, Sorensen and Maehr (1977) asked subjects to construct increasingly difficult models using the game "Atoms" (Creative Playthings). Subjects were 20 preschool children enrolled in the University of Illinois laboratory school and 20 third-graders; subjects were predominantly white and from middle-income families. Equal numbers of male and female students were assigned to the treatment conditions, verbal approval versus knowledge of results. The individual testing sessions were of approximately 20-minutes duration. At the completion of the construction tasks, the experimenter left the room to get the final task. For the next four minutes, the experimenter observed the subject through a one-way glass to obtain a measure of continuing motivation or task persistence. The experimenter returned with the final task--the "choice of challenge" (Veroff, 1969). Each subject was presented with three hidden tasks whose difficulty was expressed in terms of typical peer performance. The second task was the moderately difficult task. Sorensen and Maehr reported the following results:

1. School-age subjects preferred the moderately difficult task.

2. Verbal praise increased in effectiveness from pre-school to grade three in the measure of task persistence.

In a similar study, Harter (1975) investigated the manifestations of mastery motivation on problem-solving tasks at two age levels. Harter found that mastery motivation was more prevalent in older children which supported the hypothesis that there is a developmental shift from need for approval to mastery motivation by the age of ten or eleven. Mastery motivation was defined as the desire to solve cognitively challenging problems for the gratification inherent in discovering the solution. Subjects were 40 four-year-old children enrolled in a nursery school in New Haven, Connecticut, and 40 ten-year-olds from a summer camp in a New Haven suburb. All subjects were from an upper-middle class background. Subjects were randomly assigned to experimental groups as follows: unsolvable-social, unsolvable-experimenter absent, solvable-social, and solvable-experimenter absent. Experimenters were young females with previous experience in testing. Each experimenter tested half of the subjects in each group. Mastery motivation was assessed by recording the length of time subjects engaged in two problem-solving tasks: a solvable discrimination task in which reward was paired with color. Need for approval was assessed using the two conditions,

experimenter present and experimenter absent. The following findings were reported:

1. Preschoolers played an extremely long time on both tasks (25 used the maximum time of 20 minutes).

2. Preschool girls spent less time on the unsolvable problem than did the boys.

3. There were no sex differences in the preschoolers on the solvable problem.

4. Preschool girls remained longer in the social rather than the experimenter-absent condition.

5. Mastery motivation was more prevalent in the older children. The tendency was stronger for boys.

6. There were sex differences in the strength of need for approval. Need for approval was more important for girls, especially older girls.

To further investigate sex differences in children's responses to adult pressure for achievement, Halperin (1977) posed the following questions:

1. Is the pattern (negative or positive) of individual responses to achievement emphasis dependent upon the sex of the adult who creates the pressure?

2. Is the pattern of responses dependent on the age of the child?

Subjects for the study were 64 first-grade children and 64 fourth-grade children enrolled in one school in an eastern city. At each grade level there were 32 males and 32

females. The experiment involved four treatment conditions as follows: (a) achievement emphasis-male experimenter, (b) achievement emphasis-female experimenter, (c) neutral emphasis-female experimenter, and (d) neutral emphasis-male experimenter. All experimenters were educational psychology students. Each subject was presented with a task which consisted of seven large index cards with a number on each card. The number (3, 6, 9, 12, 15, 18, 21) represented the number of words on the opposite side of the card. The experimenter explained that after the subject chose a card, the words would be read and the subject was to try to remember them. The subjects in the achievement emphasis groups were also told that "since this is a special thinking problem like one you might do in school, it would be good if you tried to remember lots of words. Do the very best you can." The experimenter then read the words at the rate of one word every two seconds. Halperin reported the following results:

1. Fourth graders were more achievement oriented and were not influenced by the sex of the experimenter.

2. For first graders in the achievement emphasis condition, the males responded negatively to the female experimenter and positively to the male experimenter. The pattern was reversed for the girls.

Based on these results, Halperin reported that teachers might be able to maximize achievement-oriented behaviors by treating boys and girls differently.

To ascertain ethnic-cultural differences in response to a measure of achievement motivation, Adkins, Payne, and Ballif (1972) administered the instrument, Gumpgookies, to 1,588 children from ten different ethnic-cultural groups. The ages of the children ranged from 39 months to 76 months. The investigators reported that the three middle-class samples, i.e., Mormons, Catholics, and Jews, had higher mean scores than the lower-class samples. However, the black-urban, white-rural, and Puerto Rican groups had higher mean scores than the remaining groups.

Mingione (1965) reported that in a study of third, fifth, seventh, ninth, and eleventh graders from rural North Carolina that the white children (N=127) had significantly higher achievement motivation scores than the black children (N=118). In a follow-up study of fifth and seventh grade, low SES students from a large Connecticut city, Mingione (1968) found no significant differences between races, sexes, or grade levels. Mingione attributed these findings to the low SES status of the subjects.

Achievement motivation has been deemed a pertinent personality variable affecting individual achievement orientations. Research has provided evidence that parental behaviors influence the differential development of achievement motivation in sons and daughters. In addition to sex differences, socio-economic status has proved to be an important variable affecting individual achievement motivation orientations. Also, achievement motivation has

been found to be correlated with achievement which might account for disparate performance of homogeneous groups.

Achievement Motivation as a Predictor of Student Achievement

The preceding research studies pointed to the relationships between student achievement and student achievement motivation. The following studies utilized achievement motivation as a predictor variable of student achievement.

In a longitudinal study, Beller (1972) investigated the developmental changes in the patterning of socio-emotional and intellectual functioning of young children. The subjects were 169 low SES children divided as follows: (a) Group 1 entered nursery school at age four, (b) Group 2 entered kindergarten at age five without prior nursery experience, (c) Group 3 entered first grade without preschool experience. Subjects participated in the study until the end of the fourth grade. Although the subjects were originally enrolled in four schools in the slums of Philadelphia, the 150 subjects still in the study by the end of fourth grade were scattered in 80 different schools. The cognitive measures used were the Draw-a-Man test, Peabody Picture Vocabulary Test, and the Stanford Binet Test. Rating scales were used to assess the following socio-emotional variables: dependency on adults, dependency on children, dependency conflict, autonomous achievement striving, and aggression. All of the cognitive measures were administered annually, except for the Peabody Picture Vocabulary Test which was only

administered from kindergarten through fourth grade. The socio-emotional measures were administered at the nursery, kindergarten, and first-grade levels. Beller reported the following results:

1. The Stanford Binet Test tapped a more general and developmentally more stable factor of intelligence than the Peabody Picture Vocabulary Test or the Draw-a-Man test.

2. Based on steady increases in the interrelationships among the cognitive measures for boys aged four to ten years, boys seemed to integrate educational experiences and specific intellectual functions more gradually than did girls.

3. Boys were more stable on autonomous achievement striving.

4. From kindergarten through fourth-grade, dependency on adults and autonomous achievement striving were uncorrelated.

5. Autonomous achievement striving predicted intellectual achievement well into fourth-grade. (Correlations went as high as $r = .65$ in first-grade.)

6. Dependency conflict also correlated with later intellectual achievement, especially in boys. Kindergarten boys who mistrusted teachers did poorly on intellectual tasks into fourth-grade.

Cole (1974) conducted a study to investigate the relationship between self-concept, attitude toward peers,

home, school, and society and achievement motivation and academic achievement of third-grade students. The sample included 100 students whose I.Q. scores on the Otis Lennon Test of Mental Ability fell within the average range, 96-103. The Metropolitan Achievement Test was used to obtain scores on reading, language, spelling, and mathematics. Eight months later, when the students were fourth-graders, the self-concept and attitude measures were administered. The Children's Self-Concept Index was used to assess the former and the Children's Attitudinal Range Indicator was used to assess attitudes toward the home, school, peers, and society. Achievement motivation was assessed using the Classroom Behavior Inventory, a 22-item scale completed by the teachers. Cole reported that there were low, positive, significant correlations for self-concept and achievement motivation and all achievement areas assessed, with the exception of spelling. These findings were particularly significant considering the homogeneity of the group.

Lehrer and Hieronymus (1977) reported that the prediction of academic achievement was enhanced when academic motivation scales were included as predictor variables. Subjects in the study were 461 eighth-grade students who were assessed using the Iowa Test of Basic Skills, the Large-Thorndike I.Q. Test, the Iowa Pupil Inventory, and the Student Attitude Inventory. Lehrer and Hieronymus also reported that academic motivation via independence was

more highly correlated to achievement than academic motivation via conformity. In addition, students' expectations of success were significantly related to both academic motivation and academic achievement.

To identify possible non-intellective predictors of achievement, Dunham (1973) administered three achievement motivation measures to 303 male and female college freshmen. When these measures were used in conjunction with high school GPA, Dunham found that 45% of the variance was explained by the independent variables. Dunham stated that intellective factors which had been used in most previous studies had explained only 25% of the variance.

The research cited revealed that both teacher expectancy and achievement motivation influence student achievement. This study was designed to build on the previous research and to extend present knowledge of the relationships among teacher perception, achievement motivation, and student achievement in the following ways:

1. The present study focused on boys as subjects to control for sex differences in achievement motivation tendency.
2. Subjects were in their first year of school, the period when social comparison motivation emerges.
3. Animal Crackers was designed specifically for use with young children. It has been standardized and can be easily administered to kindergarten-aged children.

4. Identification of affective factors as measured by Animal Crackers would enable researchers to implement intervention studies designed to facilitate student growth in achievement motivation.

CHAPTER III PROCEDURES

To determine the relationships among teacher perception, student achievement motivation, and student achievement, data were gathered pertinent to the following questions:

1. Can student achievement be predicted from both teacher perception and student achievement motivation?
2. Can student achievement be predicted from both teacher perception and the factor scores associated with student achievement motivation?

Design

This study involved 117 kindergarten boys and their teachers. Multiple regression procedures were used to analyze data from the Adjective Description Form, Animal Crackers: A Test of Motivation to Achieve, and the Metropolitan Readiness Test. The former measures were used as the independent variables, while the total score on the Metropolitan Readiness Test was the dependent variable. The following regression models were assumed:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon_{ij}$$

where Y = the total Metropolitan Readiness Test score.

β_0 = the intercept constant

$\beta_1 X_1$ = the teacher perception score

$\beta_2 x_2$ = the achievement motivation total score

ϵ = the random error

$$Y = \beta_0 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \epsilon_{ij}$$

where Y = the total score on the Metropolitan Readiness Test.

β_0 = the intercept constant

$\beta_3 x_3$ = the teacher perception score

$\beta_4 x_4$ = the factor score, School Enjoyment

$\beta_5 x_5$ = the factor score, Self-confidence

$\beta_6 x_6$ = the factor score, Purposiveness

$\beta_7 x_7$ = the factor score, Instrumental Activity

$\beta_8 x_8$ = the factor score, Self-evaluation

ϵ = the random error

Hypotheses

Based on the above regression models, the following

null hypotheses were tested:

Hypothesis 1: The combined contributions of teacher perception and student achievement motivation are not predictive of student achievement.

Hypothesis 2: Teacher perception is not predictive of student achievement.

Hypothesis 3: Student achievement motivation is not predictive of student achievement.

Hypothesis 4: The combined contributions of teacher perception and the factor scores of student achievement motivation, i.e., School Enjoyment, Self-confidence, Purposiveness, Instrumental Activity, and Self-evaluation, are not predictive of student achievement.

Hypothesis 5: Teacher perception is not predictive of student achievement in combination with the factor scores of achievement motivation.

- Hypothesis 6: School Enjoyment is not predictive of student achievement.
- Hypothesis 7: Self-confidence is not predictive of student achievement.
- Hypothesis 8: Purposiveness is not predictive of student achievement.
- Hypothesis 9: Instrumental Activity is not predictive of student achievement.
- Hypothesis 10: Self-evaluation is not predictive of student achievement.

Instrumentation

Each child's achievement motivation tendency was assessed using Animal Crackers: A Test of Motivation to Achieve developed by Adkins and Ballif (1975). This instrument was administered to groups of not more than 15 children. Proctors (one for every five to seven children) assisted in the administration of the instrument. Adkins and Ballif reported that the KR 20 reliability coefficient on the factors ranged from .78 to .85 for the kindergarten spring sample. The KR 20 reliability coefficient for spring testing was .95 for kindergarten. Descriptive and normative statistics from Adkins and Ballif study appear in Tables 1 and 2. Test-retest data appear in Table 3.

To ascertain the validity of Animal Crackers, the authors built on the theoretical base of its predecessor instrument, Gumpgookies. Adkins and Ballif reported that they had obtained low positive correlations with age and intelligence and had found statistically significant relationships between test scores and teacher ratings of

Table 1. Total Test Means and Standard Deviations of Raw Scores of Kindergarten Boys, Fall Testing, Animal Crackers.^a

Subgroup	N	Mean	SD
Black male	55	36.80	12.79
Spanish-speaking male	98	34.04	13.63
All other male	1,340	39.37	12.81
Total male	1,493	38.93	12.93

^aAdkins and Ballif, 1975.

Table 2. Descriptive Statistics for Factor and Total Test Raw Scores for Kindergarten Students, Animal Crackers.^a

Factor	No. of Items	Mean	SD	KR 20
School Enjoyment	12	8.59	3.23	.84
Self-confidence	12	9.05	2.93	.81
Purposiveness	12	9.15	2.89	.81
Instrumental Activity	12	9.16	3.14	.85
Self-evaluation	12	8.57	2.90	.78
Total test	60	44.52	13.50	.95

^aN = 2,623

Table 3. Test-Retest Data on Animal Crackers.^a

Motivation Component	Kindergarten (N = 2,360)				r
	Fall		Spring		
	Mean	SD	Mean	SD	
School Enjoyment	7.71	3.21	8.59	3.25	.40
Self-Confidence	7.99	3.08	9.07	2.94	.40
Purposiveness	8.15	3.02	9.16	2.92	.41
Instrumental Activity	8.05	3.26	9.19	3.15	.44
Self-evaluation	7.47	2.76	8.60	2.91	.47
Total test	39.38	13.60	44.62	13.60	.49

^aAdkins and Ballif, 1975.

of motivation. In addition to the previous findings using Gumpgookies, the authors gathered motivation rating data as Animal Crackers was developed. A motivation rating scale which included 15 descriptive statements and behaviors assumed to be related to the motivation constructs was completed on a sample of 985 children. The correlation between the motivation rating and the total test score on Animal Crackers was .45. In another rating exercise, the authors asked the teachers to provide the names of the three "most highly motivated" children and the three "least motivated" children in their classes. In the sample of 129 kindergarten ratings, 80% of the children classified as "most highly motivated" scored above the median on Animal Crackers while 67% of the "least motivated" group scored below the median.

Each of the 13 teachers involved in the study completed the Adjective Description Form, a 20 item, five-point scale (Willis, 1972) for each boy participating in the study. Willis reported that the 20 adjective descriptions were significantly correlated with teacher rankings of students' achievement (see Table 4). The teacher rankings of students were, in turn, significantly correlated with Metropolitan Readiness Test scores (see Table 5). The Adjective Description Form consisted of student attributes which contribute to the formation of teacher perceptions and was used to assess teacher perception.

The Metropolitan Readiness Test was used to assess student achievement. The test consisted of the following subtests: beginning consonants, sound-letter correspondence, visual matching, finding patterns, school language, listening, quantitative concepts, and quantitative operations. Reliability was reported to be .94 for students tested early in the first grade ($N = 424$) (Nurss & McGauvran, 1976). Content validity was determined through item analysis programs in 1972 and 1973. Sequential skills essential for the beginning reader were identified and tests were constructed to assess the skills. Through item analysis procedures the tests were refined. Predictive validity was determined through correlation of fall Metropolitan Readiness Test scores with spring scores on the Metropolitan Achievement Test or the Stanford Achievement Test. The correlation between the total Stanford Achievement Test and the Metropolitan Readiness Test was reported as .78. The correlation between the Metropolitan Achievement Test was reported as .73 (Nurss & McGauvran, 1976).

Subjects and Sampling

Subjects for this study were kindergarten boys enrolled in the public school system in Alachua County, Florida. Three schools were randomly selected from among the 14 Title I schools in the system. The teachers in a fourth Title I school volunteered to participate in the study. To comply with the regulations of the Committee for the

Table 4. Correlations of Adjective Description Form Items and Teacher Achievement Rankings of Students^a

	Time 1 N=522	Time 2 N=552	Time 3 N=512
Very attentive to class proceedings/Does not pay attention	.70	.72	
Gets along well with others/Fights, argues shows aggressive behavior	.21		.18
Very self-confident/Lacks self-confidence	.70		.68
Active participant, often makes comments or asks question/Very quiet	.50	.49	
Very obedient/Disobedient, defiant	.34		.29
Has very good self-control/Restless, hyperactive, can't sit still	.34	.34	
Good looking/Unattractive	.30		
Large/Small	.20		
Mature/Immature	.71	.66	
Works very well without constant supervision, follows instructions easily/Does not work well without constant teacher supervision	.75		.76
Industrious, always tries to do his best/Lazy, often doesn't do his best		.56	
Leader/Follower		.49	
Easily understood, speaks very clearly/Very hard to understand (whispers, uses baby talk)		.56	

Table 4. Continued

Very neat/Very messy	.57	.51
Best reader in class/ Poorest reader in class	.85	.86
Very healthy/Frail, not healthy		.37
Very cautious, careful/ Very impulsive		.43
Helpful, assists teacher or other children volun- tarily/Not notably helpful, does not assist teacher or children voluntarily		.54
Creative, imaginative/Not notably creative or imaginative		.62

$p < .01$

^afrom Willis, 1972.

Table 5. Correlations of Teacher Achievement Rankings of Students and Metropolitan Readiness Test Scores.^a

	Time 1	Time 2	Time 3
Boys	.63	.80	.75

$N > 200$, $p < .01$

^afrom Willis, 1972.

Protection of Human Subjects, informed consent forms were sent to the parents of all kindergarten boys ($N = 178$) in the participating schools. Thus, the 117 students who actually participated in the study were volunteer subjects. Demographic data on subjects appear in Table 6.

Data Collection

The teacher perception data were collected in late April, 1978, prior to county-wide assessment of kindergarten students. The Metropolitan Readiness Test was administered by each of the participating classroom teachers in May, 1978. The achievement motivation data were collected during the same period but following the achievement testing. Animal Crackers was administered by this investigator to groups of up to 15 children. Proctors assisted in the group administration of the instrument. The children were taken out of the classroom for the testing period. Testing was limited to Tuesday, Wednesday, and Thursday mornings as suggested in the examiner's manual.

Data Analysis

Multiple regression techniques were used to analyze data. The analysis involved testing the significance of the overall F ratio when the independent variables, i.e., teacher perception and student achievement motivation, were entered simultaneously. Race and socio-economic status (low/not low) of students were coded and entered into the equations to control for possible sources of variance. In addition,

Table 6. Demographic Data on Subjects.

	Teacher	Black	Subjects White	Other	Total
School 1	1	1	9	3	13
	2*	1	6	1	8
	3*	4	2	0	6
	4	1	9	0	10
School 2	5*	1	8	0	9
	6	0	8	0	8
	7	5	5	0	10
	8	2	8	0	10
School 3	9	2	8	0	10
	10*	0	9	0	9
	11	2	4	0	6
School 4	12	0	7	0	7
	13	9	2	0	11
Totals	13	28	85	4	117

*Black teachers

stepwise regression analysis was used to test the unique contribution of each independent variable. The significance level was set at $\alpha = .05$.

CHAPTER IV RESULTS

This study investigated the relationships among teacher perceptions, student achievement motivation, and student achievement. The results of the multiple regression analyses of the data are presented in this chapter.

Statistical Analysis of Hypotheses 1, 2, and 3

The first three hypotheses were tested using both simultaneous and stepwise regression procedures. The means and standard deviations for the variables are presented in Table 7. The results of the analyses are presented in Tables 8, 9, 10, 11, and 12.

Hypothesis 1: The combined contributions of teacher perception and student achievement motivation are not predictive of student achievement.

The data were analyzed using student race and student socio-economic status in addition to the independent variables of teacher perception and student achievement motivation. The results of the simultaneous regression analysis are presented in Table 8. The overall F ratio was significant ($F = 48.54, p < .05$). The unique contributions of the variables are presented in Table 9. Student race was found to be a suppressor variable in that it was more highly correlated (see Appendix C) with achievement motivation than

teacher perception. Because student race explained so much of the variance and served as a suppressor variable, it was not included in further analyses. Student socio-economic status did not make a significant contribution to the overall equation; therefore, it was not included in further analysis.

The results shown in Table 10 indicate that the overall F ratio was significant ($F = 47.31$, $p < .05$). Thus, the hypothesis was rejected. The following regression equation was derived from the analysis:

$$Y = 20.56 + .58X_1 + .91X_2$$

where Y = the total Metropolitan Readiness Test score

20.56 = the intercept constant

$.58X_1$ = the teacher perception score multiplied by B weight

$.91X_2$ = the achievement motivation total score multiplied by B weight

The combined contributions of the independent variables explained 45% of the variance associated with the dependent variable.

Hypothesis 2: Teacher perception is not predictive of student achievement.

Based on the above results, hypothesis 2 was also rejected. Stepwise regression analysis yielded $F = 50.75$, $p < .05$, when teacher perception was entered first in the equation (see Table 11).

Hypothesis 3: Student achievement motivation is not predictive of student achievement.

Table 7. Means and Standard Deviations for Scores on the Adjective Description Form, Animal Crackers, and the Metropolitan Readiness Test.

Variable	N	Mean	SD
Metropolitan Readiness Test	117	68.50	21.78
Adjective Description Form	13	10.67	15.71
Animal Crackers	117	45.75	9.74

Table 8. Simultaneous Regression Analysis Using Student Race, Student Socio-Economic Status, Teacher Perception, and Student Achievement Motivation as Predictors of Metropolitan Readiness Test Scores.

Variables	Multiple R	R ²	R ² Change	F
Student Race	.5970	.3564	.3564	63.69*
Teacher Perception	.7548	.5697	.2133	75.46*
Student Achievement Motivation	.7941	.6305	.0608	64.28*
Student Socio-economic Status	.7964	.6342	.0036	48.54*

* $p < .05$

Table 9. Unique Contributions of Student Race, Teacher Perception, Student Achievement Motivation, and Student Socio-Economic Status.

Variable	F
Student Race	48.81*
Teacher Perception	37.49*
Student Achievement Motivation	16.87*
Student Socio-economic Status	1.11

* $p < .05$

Table 10. Simultaneous Regression Analysis Using Teacher Perception and Student Achievement Motivation Scores as Predictors of Metropolitan Readiness Test Scores.

Variables	Multiple R	R ²	R ² Change	F
Student Achievement Motivation and Teacher Perception	.67347	.45356	.45356	47.311*

*p < .05

Table 11. Stepwise Regression Analysis Using Teacher Perception and Student Achievement Motivation Scores as Predictors of Metropolitan Readiness Test Scores.

Variables	Multiple R	R ²	R ² Change	Overall F
Step 1				
Teacher Perception	.55325	.30608	.30608	50.725*
Step 2				
Student Achievement Motivation	.67347	.45356	.14748	47.311*

* $p < .05$

Table 12. Stepwise Regression Analysis Using Teacher Perception and Student Motivation Scores as Predictors of Metropolitan Readiness Test Scores.

Variables	Multiple R	R ²	R ² Change	F
Step 1				
Student Achievement	.54886	.30125	.30125	49.58*
Motivation				
Step 2				
Teacher Perception	.67347	.45356	.15231	47.311*

* $p < .05$

Table 13. Means and Standard Deviations for the Scores on the Adjective Descriptive Form, the Factor Scores from Animal Crackers, and the Metropolitan Readiness Test.

Variable	N	Mean	SD
Metropolitan Total Score	117	68.50	21.78
Teacher Perception	13	10.66	15.70
School Enjoyment	117	7.97	2.92
Self-confidence	117	9.74	2.31
Purposiveness	117	9.70	2.08
Instrumental Activity	117	9.71	2.45
Self-evaluation	117	8.62	2.55

Table 14. Regression Analysis Using Teacher Perception and the Factor Scores of Achievement Motivation as Predictors of Student Achievement.

Variables	Multiple R	R ²	R ² Change	F
Teacher Perception	.55325	.30608	.30608	
Instrumental Activity	.66345	.44017	.13408	
Self-evaluation	.68675	.47162	.03146	
Purposiveness	.69238	.47940	.00777	
Self-confidence	.69473	.48265	.00325	
School Enjoyment	.69500	.48303	.00038	17.13*

* $p < .05$

Table 15. Unique Contributions of the Predictor Variables.

Variable	F
Teacher Perception	24.247*
Instrumental Activity	2.918
Self-evaluation	5.360*
Purposiveness	2.080
Self-confidence	.711
School Enjoyment	.081

* $p < .05$

Examination of the stepwise data revealed that when student achievement motivation was entered first in the equation, the $F = 49.58, p < .05$ (see Table 12). Thus, hypothesis 3 was rejected.

Statistical Analysis of Hypotheses 4, 5, 6, 7, 8, 9, and 10

Stepwise regression procedures were used to test the next seven hypotheses. Descriptive statistics appear in Table 13. The results of the analysis are presented in Tables 14, 15, and 16.

Hypothesis 4: The combined contributions of teacher perception and the factor scores of student achievement motivation, i.e., School Enjoyment, Instrumental Activity, Purposiveness, Self-evaluation, and Self-confidence are not predictive of student achievement.

The results shown in Table 14 indicate that the hypothesis could be rejected ($F = 17.13, p < .05$). Unique contributions of the independent variables appear in Table 15. The following equation was derived:

$$Y = 20.25 + .53X_3 + .18X_4 - .75X_5 + 1.55X_6 + 1.75X_7 + 1.89X_9$$

where Y = the total Metropolitan Readiness Test score

20.25 = the intercept constant

.53X₃ = the teacher perception score multiplied by B weight

.18X₄ = the factor score, School Enjoyment multiplied by B weight

-.75X₅ = the factor score, Self-confidence multiplied by B weight

1.55X₆ = the factor score, Purposiveness multiplied by B weight

$1.75X_7$ = the factor score, Instrumental Activity multiplied by B weight

$1.89X_8$ = the factor score, Self-evaluation multiplied by B weight

Hypothesis 5: Teacher perception is not predictive of student achievement.

Stepwise analysis revealed that when teacher perception was entered first in the equation, the $\underline{F} = 50.73, p < .05$.

Thus, the hypothesis was rejected.

Hypothesis 6: School Enjoyment is not predictive of student achievement.

Hypothesis 6 was rejected. The stepwise analysis revealed a significant \underline{F} ratio when School Enjoyment was entered first in the equation ($\underline{F} = 9.62, p < .05$).

Hypothesis 7: Instrumental Activity is not predictive of student achievement.

Hypothesis 7 was rejected based on examination of the stepwise data ($\underline{F} = 37.11, p < .05$).

Hypothesis 8: Purposiveness is not predictive of student achievement.

Examination of stepwise data revealed a significant \underline{F} ratio when the factor score purposiveness was entered first in the equation ($\underline{F} = 34.79, p < .05$). Hence, hypothesis 8 was rejected.

Hypothesis 9: Self-evaluation is not predictive of student achievement.

Hypothesis 9 was rejected. Stepwise analysis revealed an $\underline{F} = 53.68, p < .05$, when Self-evaluation was entered first in the equation.

Hypothesis 10: Self-confidence is not predictive of student achievement.

Hypothesis 10 was rejected for examination of the stepwise data revealed an $F = 19.65, p < .05$.

In summary, all null hypotheses were rejected. Teacher perception and student achievement motivation were found to be significant predictors of student achievement. In addition, the individual factor scores of achievement motivation were found to be significant predictors of student achievement when each was entered first in the equation. (see Table 16). Discussion of these findings is presented in Chapter V.

Table 16. Regression Analysis Using the Factor Scores of Achievement Motivation as Predictors of Student Achievement.

Factors	Multiple R	F
School Enjoyment	.27783	9.62*
Self-confidence	.38204	19.65*
Instrumental Activity	.49394	37.11*
Self-evaluation	.56413	53.68*
Purposiveness	.48195	34.79*

* $p < .05$

CHAPTER V DISCUSSION

The study was designed to investigate the relationships among student perception, student achievement motivation, and student achievement.

Dunham (1973) reported that inclusion of a measure of student achievement motivation increased the variance explained by intellectual predictors from 25% to 45%. This investigator found that 45% of the variance associated with student achievement was also explained when a measure of student achievement motivation was included in the analysis. In addition, there was a 3% increase in variance explained when the factor scores were used in the prediction equation.

In this study, teacher perception was found to be a significant predictor of student achievement which itself explained 30% of the variance associated with student achievement. This is an interesting finding when one considers the correlations between individual teacher perceptions and student achievement motivation. The correlations range from $-.30$ to $.91$ for the 13 teachers in this study (see Table 17). The finding that teacher perception explains so much of the variance associated with student achievement raises the question of the self-fulfilling prophecy (Rosenthal & Jacobson, 1968).

Table 17. Correlation Coefficients of Teacher Perception and Student Achievement Motivation.

Teacher	School	N	Correlation Coefficient
1	1	13	.4070
2	1	8	.1100
3	1	6	-.0843
4	1	10	.2358
5	2	9	.5187
6	2	8	.7675*
7	2	10	.2376
8	2	10	.5216
9	3	10	.0997
10	3	9	.8356*
11	3	6	.9152*
12	4	7	-.3070
13	4	11	.3894

* $p < .05$

The data also suggested that the factor score, Self-evaluation and Instrumental Activity, were the best predictors of student achievement (see Table 15). The high correlations among the achievement motivation factors reduced the predictive power of the other factors, Purposiveness, School Enjoyment, Self-confidence (see Appendix C). More specifically, the student's ability to initiate steps toward achieving goals (Instrumental Activity) and to evaluate school work (Self-evaluation) were significant predictors of achievement when considered in conjunction with teacher perception. Intervention studies could be implemented to explore possible methods of instruction which would enhance the development of achievement motivation, especially in the areas of Self-evaluation and Instrumental Activity.

Conclusions

The major conclusions from this study are the following:

1. Teacher perception is a significant predictor of student achievement.
2. Student achievement motivation is a significant predictor of student achievement.
3. The correlation between teacher perception and student achievement motivation varies as a function of the individual teacher.
4. Each factor score of achievement motivation is a significant predictor of student achievement.

Implications

Achievement motivation develops in the preschool years and as the child enters into the school environment, social comparison motivation emerges. Student achievement motivation is a significant predictor of student achievement.

In addition, pre-service and inservice education programs should emphasize the impact of teacher perception and student achievement motivation on student achievement. Program components could be designed to help teachers explore their feelings and incorporate aspects of student motivation into their overall perceptions of students.

Likewise, parent education programs could stress the role of the parent in the development of the child's achievement motivation tendency.

Since the individual factor scores were significant predictors of achievement, both teachers and parents could use the delineation of the factors to design appropriate activities for their students/children. In this way, development of achievement motivation could be enhanced.

Future Research

Research efforts need to concentrate in the area of achievement motivation so that methods of parent counseling and methods of instruction in early childhood education classrooms can be devised to enhance the development of achievement motivation. It is essential that future research be conducted in natural settings, i.e., the home and the

school. Such research efforts will hopefully contribute information about personality factors which interact with the achievement setting to produce differential achievement motivation of students. In addition, research efforts should involve subjects of both sexes. More information is needed to elucidate the emergence of sex differences in expectancies.

The problem in the area of measurement of achievement motivation needs to be resolved. Measures of achievement motivation should correlate with one another. This leads to the problem of the generality of achievement motivation across tasks. How task specific is the achievement motivation tendency?

The behaviors attributed to high and low achievement motivated subjects should be examined more closely, especially when one considers Veroff's (1969) delineation of types of achievement motivation. Are those who are highly motivated to achieve self-competitive or other-competitive?

Another area in need of examination is that of the cross-cultural applicability of achievement motivation measures. Most research to date has involved white, middle-class subjects.

A final area of concern is that of the educational environment itself. How can the school environment be manipulated to maximize motivation of all students regardless

of personality differences? This would require research in the areas of homogeneous grouping, programmed instruction, independent study, personnel practices, and parent education programs.

Summary

The study investigated the relationships among teacher perceptions, student achievement motivation, and student achievement.

Research in the area of teacher perception has pointed to the importance of teacher perception as a factor related to individual student achievement. This study investigated the combined and individual effects of both teacher perception and individual student achievement motivation on student achievement.

The results indicated that both teacher perception and student achievement motivation were significant predictors of student achievement. In addition, the factor scores of student achievement motivation were all found to be significant predictors of student achievement when each was entered first in the regression equation. The factor scores Self-evaluation and Instrumental Activity were found to be most predictive of student achievement.

APPENDIX A
ADJECTIVE DESCRIPTION FORM

Name _____

ADJECTIVE DESCRIPTION FORM*

- | | | |
|---|-------------------------------|--|
| 1. Does not pay attention | _____ : _____ : _____ : _____ | Very attentive to class proceedings |
| 2. Gets along well with others | _____ : _____ : _____ : _____ | Fights, argues, shows aggressive behavior |
| 3. Very self-confident | _____ : _____ : _____ : _____ | Lacks self-confidence |
| 4. Active participant, often makes comments or asks questions | _____ : _____ : _____ : _____ | Very quiet |
| 5. Very obedient | _____ : _____ : _____ : _____ | Disobedient, defiant |
| 6. Restless, hyper-active, can't sit still | _____ : _____ : _____ : _____ | Has very good self-control |
| 7. Unattractive | _____ : _____ : _____ : _____ | Good looking |
| 8. Large | _____ : _____ : _____ : _____ | Small |
| 9. Immature | _____ : _____ : _____ : _____ | Mature |
| 10. Does not work well without constant teacher supervision | _____ : _____ : _____ : _____ | Works very well without constant teacher supervision follows instructions easily |
| 11. Lazy, often doesn't do his best | _____ : _____ : _____ : _____ | Industrious, always tries to do his best |
| 12. Leader | _____ : _____ : _____ : _____ | Follower |
| 13. Very hard to understand (whispers, uses baby talk) | _____ : _____ : _____ : _____ | Easily understood, speaks very clearly |
| 14. Has many friends | _____ : _____ : _____ : _____ | Has few friends |
| 15. Very messy | _____ : _____ : _____ : _____ | Very neat |
| 16. Best reader in class | _____ : _____ : _____ : _____ | Poorest reader in class |

ADJECTIVE DESCRIPTION FORM . . . p. 2

- | | | | |
|-----|---|------------------------------------|---|
| 17. | Very healthy | <u> : : : </u> | Frail, not healthy |
| 18. | Very cautious,
careful | <u> : : : </u> | Very impulsive |
| 19. | Not notably
helpful, does
not assist
teacher | <u> : : : </u> | Helpful, assists
teacher or other
children volun-
tarily |
| 20. | Not notably
creative or
imaginative | <u> : : : </u> | Creative, imaginative |

*Willis, 1972

APPENDIX B
SAMPLE QUESTIONS FROM ANIMAL CRACKERS

(Item 13)

(right) This bear tries to learn a new dance.

(left) This bear keeps on doing an old dance.

(Item 14)

(left) This penguin asks the teacher what it must do to finish its work.

(right) This penguin knows what it must do to finish its work.

(Item 15)

(left) This pony wants to come to school tomorrow.

(right) This pony wants to stay at home tomorrow.

(Item 16)

(right) This puppy knows the way to the store.

(left) This puppy wants someone to show the way to the store.

(Item 17)

(right) This lamb stops playing if it does not win.

(left) This lamb keeps on trying to win.

(Item 18)

(right) This lion likes school a little bit.

(left) This lion likes school very much.

(Item 19)

(left) This monkey learns to sing a song with the others.

(right) This monkey talks while the others are learning a song.

(Item 20)

(left) This rabbit will try to do only easy things.

(right) This rabbit will try to do some hard things.

(Item 21)

- (left) This kitten keeps working and finishes its house.
 (right) This kitten stops working because its house fell down.

(Item 22)

- (left) This elephant wants to work a little longer.
 (right) This elephant wants to stop working now.

(Item 23)

- (right) This duck gets its things ready for a bus ride.
 (left) This duck watches the others get ready for a bus ride.

(Item 24)

- (left) This giraffe is too little to hit a ball.
 (right) This giraffe can hit a ball.*

*Adkins & Ballif, 1975

APPENDIX C
INTERCORRELATIONS OF THE VARIABLES

INTERCORRELATIONS OF THE VARIABLES

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Student Race	1.00	.2826	-.2381	-.2908	-.0623	.1636	.3227	.5970	.1429	.1994	.3499	.2701	.3429
2. SES	1.00		-.1295	-.0970	-.0889	.2444	.2769	.3523	.0305	.2449	.2743	.2654	.3218
3. School	1.00			.9587	.2111	-.1587	.0159	-.4332	.0185	.1207	-.0660	.0099	-.0256
4. Teacher	1.00				.2551	-.1779	-.0343	-.4839	-.0173	.0682	-.1157	-.0273	-.0522
5. Teacher Race		1.00				-.0633	.0773	-.0476	-.0803	.1066	-.0238	-.0024	.1282
6. Teacher Perception			1.00				.3391	.5533	.0658	.3209	.2894	.2524	.4502
7. Achievement Motivation				1.00				.5489	.7315	.7821	.8199	.8827	.7557
8. Metropolitan Total Score					1.00				.2778	.3820	.4820	.4939	.5641
9. School Enjoyment						1.00				.4025	.4598	.5976	.3347
10. Self-confidence							1.00				.6216	.6237	.5130
11. Purposefulness								1.00				.6871	.5653
12. Instrumental Activity									1.00				.6004
13. Self-evaluation										1.00			

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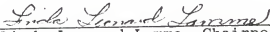
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Biographical Sketch


Janice Knudsen was born in Dayton, Ohio, in 1949. She received her primary education in Dayton, Ohio, and received her upper elementary and secondary education in St. Augustine, Florida. She was awarded a B.S. in Elementary Education from Jacksonville University in 1971 and received an M.Ed. in Elementary Administration and Supervision from the University of North Florida in August, 1975.

Janice taught in the primary grades in Jacksonville, Palatka, and St. Augustine. In June, 1976, she entered Graduate School at the University of Florida and was a seminar leader in the Early Childhood Education Program. In September of 1977, Janice continued as a seminar leader and also taught language arts and reading in the Early Childhood Education Program. Janice has also been an Adjunct Instructor in the Department of Elementary and Secondary Education at the University of North Florida. Janice is currently employed by Clay County School Board as a curriculum specialist.

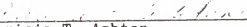
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